United States Department of Agriculture

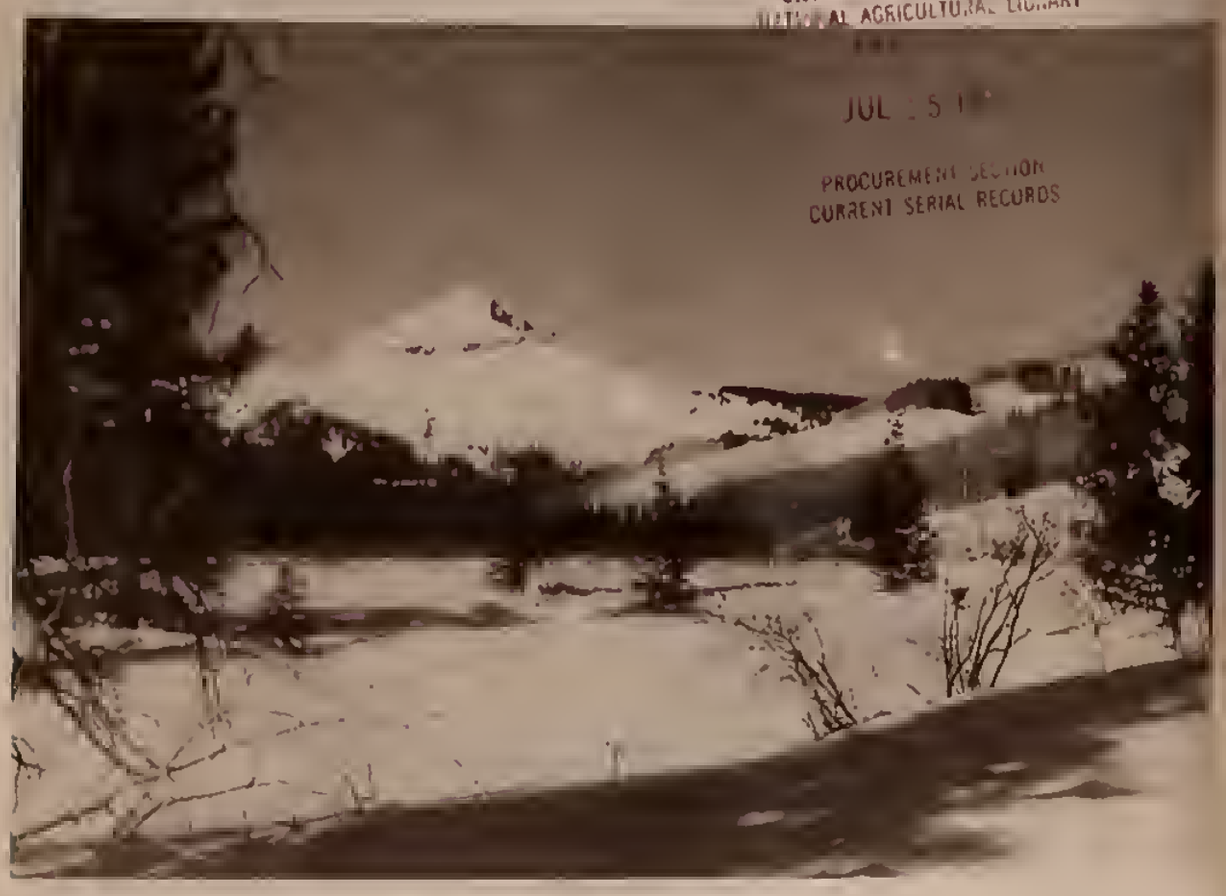
Soil Conservation Service

Montana Agricultural Experiment Station

Bozeman, Montana

MONTANA WATER SUPPLY OUTLOOK

Snowpack and Streamflow Forecasts as of June 1, 1982



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THE MONTANA WATER SUPPLY OUTLOOK IS A PUBLICATION OF THE U.S. SOIL CONSERVATION SERVICE. THE SCS ADMINISTERS THE COOPERATIVE SNOW SURVEY PROGRAM IN COOPERATION WITH OTHER FEDERAL, STATE, AND PRIVATE AGENCIES, ORGNAIZATIONS, AND INDIVIDUALS.

THE REPORT IS PREPARED BY SCS, SNOW SURVEY AND WATER SUPPLY FORECAST UNIT, P. O. BOX 98, BOZEMAN, MONTANA.

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FEDERAL - STATE - PRIVATE
COOPERATIVE SNOW SURVEYS
Furnishes the basic data necessary for forecasting water supply for irrigation, domestic and municipal water supply, hydro-electric power generation, navigation, mining and industry
"The Conservation of Water begins with the Snow Survey"

WEATHER COMPUTER GOES WHACKO

The big computer in the sky that determines our weather slipped a cog and brought winter back to most of Montana for the Memorial Day weekend.

Temperatures dropped below the freezing mark and stayed. Snow accumulated up to 15 inches in the valley areas of central Montana and winds up to 45 mph blocked roads with drifts reported to be 10 to 15 feet deep. Power was knocked out at 26 Montana communities. Fortunately, there were no reports of deaths or serious injuries.

All mountain areas received substantial precipitation with the majority falling as snow.

Many streams running bank full with snowmelt water before the storm, dropped as cold temperatures brought mountain snowmelt to a standstill. Runoff in many low elevation streams increased with rainfall, but snow helped spread runoff over a longer time span. This will result in much lower peak flows than would have occurred if all of the precipitation had fallen as rain.

Now that moisture is abundant in most areas, warm weather enabling crops and grasses to grow would be appreciated!

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
P.O. Box 98
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OFFICIAL BUSINESS
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SNOWPACK ABOVE AVERAGE

The mountain snowpack is above average for most areas in Montana. The recent cool weather, additional snowfall and good early season snow accumulation combined with a cool spring, contributed to the present conditions. Snowpack in the higher elevations will persist well into the summer and hold streamflows up as well.

Melt was progressing at a near normal pace prior to the onset of the cold, wet system that blanketed the area over the Memorial Day weekend. As temperatures warm, snowmelt will resume. Daily melt rates will increase due to more daylight hours, higher sun angles and minimum daily temperatures rising above the freezing level.

MANY STREAMS STILL TO PEAK

Many streams reached their seasonal peak on the 28th or 29th of May, just prior to the cool temperatures which caused flows to drop drastically. For some streams, this will be the highest snowmelt runoff for the year. However, for others, the peak snowmelt runoff is expected between mid-June and early July.

Major streams in the Missouri River headwaters of southwest Montana are expected to have their peak snowmelt runoff around mid-June. The exception is the Gallatin River where the peak is expected about a week later or in late June.

In the Columbia River headwaters, the Clark Fork and Blackfoot Rivers and the North and Middle Forks of the Flathead River, are expected to get a little higher just before mid-June than they were near the end of May unless temperatures remain cooler than normal. The Bitterroot is is forecast to reach its peak around mid-June and be higher than those flows measured on May 27.

The Yellowstone River as it comes out of Yellowstone Park, and the Boulder and Stillwater Rivers, are still expected to have their peak snowmelt runoff in late June to early July.

The flows at Billings may peak a little sooner than the upper river. Rock Creek near Red Lodge will be a little later with an early July peak snowmelt runoff anticipated.

Total streamflow volumes are still expected to be similar to those issued on May 1, with good irrigation water supply in nearly all Montana drainages.

LONGTIME SNOWMAN TO RETIRE

Glenn J. Herdina has submitted his retirement papers and will be a man of leisure as of August 7, 1982. That is, if operating a farm near Belgrade is considered leisure!

Glenn made his first snow survey in Montana at the Storm Lake Snow Course on December 29, 1955. Since then, he has probably made more snow surveys than any other individual in this state.

Glenn is well known for his mechanical abilities and he used these skills to keep the snow machines and other snow survey equipment in good operating condition over these many years.

The snow survey program will definitely miss Glenn but it has benefited from his consistent and dependable input over the past 27 years. We all send our best wishes to Glenn and wish him a joyous and fruitful retirement from snow surveying.

SNOW SURVEY DATA

SNOW JUNE 1, 1982

DRAINAGE BASIN and/or SNOW COURSE NAME	Elevation	THIS YEAR Date of Survey	THIS YEAR Snow Depth (Inches)	THIS YEAR Water Content (Inches)	PAST RECORD Water Content (Inches) Last Year	PAST RECORD Water Content (Inches) Average
BADGER PASS	6900	6/01	110	50.3	20.7	41.3
BADGER PASS PILLOW	6900	6/01	SP	43.5	10.7	-
BANFIELD MOUNTAIN	5600	6/01	31	16.3	.0	7.6
BANFIELD MOUNTAIN PILLOW	5600	6/01	SP	11.6	0.0	4.2
BARKER LAKES PILLOW	8250	6/01	SP	18.8	12.9	-
BASIN CREEK	7180	5/27	22	7.6	4.9	-
BASIN CREEK PILLOW	7180	6/01	SP	14.2	9.7	-
BEAGLE SPRINGS PILLOW	8850	6/01	SP	4.7	0.2	-
BEAR PAW SKI AREA	5200	6/01	23	5.8	.0	-
BIG CREEK	6750	6/01	90	49.2	39.0	44.3
BLACK BEAR	7950	5/26	79	42.6	-	36.0
BLACK BEAR PILLOW	7950	5/26	SP	40.0	9.6	30.1
BLACK PINE	7100	5/27	24	10.4	.0	4.1
BLACK PINE PILLOW	7100	5/27	SP	9.6	0.0	4.4
BLOODY DICK PILLOW	7600	6/01	SP	7.5	0.0	-
BLUE LAKE	5900	6/01	52	22.8	.0	14.7
BOULDER MOUNTAIN PILLOW	7950	6/01	SP	23.0	11.1	-
BOX CANYON PILLOW	6670	6/01	SP	.0	0.0	-
BRIDGER BOWL	7250	6/01	72	28.7	16.0	23.6
BRIDGER BOWL PILLOW	7250	6/01	SP	25.4	8.6	19.8
CALVERT CREEK PILLOW	6450	6/01	SP	.0	0.0	0.0
CASHE CREEK PILLOW	7800	6/01	SP	5.0	0.0	-
CHICKEN CREEK	4060	5/25	0	.0	.0	-
CLOVER MEADOW PILLOW	8600	6/01	SP	18.3	12.7	-
COLE CREEK	7850	6/01	44	16.2	11.4	19.5
COLE CREEK PILLOW	7850	6/01	SP	13.1	8.9	18.6
COMBINATION	5600	5/28	9	1.6	.0	0.0
COMBINATION PILLOW	5600	5/28	SP	1.0	0.0	0.0
COPPER BOTTOM PILLOW	5200	6/01	SP	.0	0.0	0.0
COPPER CAMP PILLOW	6950	6/01	SP	34.5	0.1	19.1
CRYSTAL LAKE PILLOW	6100	6/01	SP	5.9	0.0	-
DALY CREEK PILLOW	5780	6/01	SP	.0	0.0	-
DARKHORSE LAKE PILLOW	8600	6/01	SP	35.3	20.3	-
DEADMAN CREEK	6450	6/01	6	1.4	.0	0.4
DEADMAN CREEK PILLOW	6450	6/01	SP	13.3	0.0	0.0
DESERT MOUNTAIN	5600	6/01	6	3.2	-	1.4
DIVIDE PILLOW	7900	6/01	SP	7.0	0.0	1.0
DIX HILL	6400	5/30	10	2.0	-	0.9
EMERY CREEK	4350	6/01	0	.0	.0	-
EMERY CREEK PILLOW	4350	6/01	SP	.0	.0	-
FATTY CREEK	5500	6/01	28	14.6	.0	9.1
FISH CREEK	8000	5/27	32	11.8	9.2	-
FISHER CREEK PILLOW	9100	6/01	SP	41.0	20.1	38.0
FLATTOP MOUNTAIN PILLOW	6300	6/01	SP	42.6	27.2	48.0
FOURTH OF JULY	3450	6/02	0	.0	.0	-
FRIDAY HILL	4620	6/02	0	.0	.0	-
FROHNER MEADOWS PILLOW	6480	6/01	SP	4.0	.0	3.1
GARVER CREEK	4250	6/01	0	.0	.0	0.1
GARVER CREEK PILLOW	4250	6/01	SP	.3	0.0	0.0
GRAVE CREEK	4300	6/01	0	.0	.0	2.1
GRAVE CREEK PILLOW	4300	6/01	SP	.0	6.9	0.0
GRIZZLY PEAK	8640	6/01	35	12.8	12.7	-
GUNSIGHT LAKE	6300	6/01	80	42.2	14.4	35.4

SNOW JUNE 1, 1982

DRAINAGE BASIN and/or SNOW COURSE NAME	Elevation	THIS YEAR Date of Survey	THIS YEAR Snow Depth (Inches)	THIS YEAR Water Content (Inches)	PAST RECORD Water Content (Inches) Last Year	PAST RECORD Water Content (Inches) Average
HAND CREEK	5030	5/28	0	.0	.0	-
HAND CREEK PILLOW	5030	6/01	SP	.0	0.0	-
HAWKINS LAKE	6450	6/01	59	31.0	18.7	24.1
HAWKINS LAKE PILLOW	6450	6/01	SP	30.5	17.1	23.5
HEART LAKE TRAIL	4800	5/31	8	4.0	.0	4.1
HELL ROARING DIVIDE	5770	5/26	41	20.4	.0	13.6
HERRIG JUNCTION	4850	2/25	32	15.7	.0	-
HOODOO BASIN	6000	5/31	93	51.1	17.6	39.0
HOODOO BASIN PILLOW	6000	6/01	SP	45.9	15.6	33.0
HOODOO CREEK	5900	5/31	96	49.4	16.9	36.5
KINGS HILL	7500	6/01	48	16.2	3.6	11.4
KIWANIS CAMP	3720	6/01	13	3.6	.0	-
KRAFT CREEK PILLOW	4750	6/01	SP	.0	0.0	-
LAKEVIEW RIDGE PILLOW	7400	6/01	SP	.0	0.0	-
LEMHI RIDGE PILLOW	8100	6/01	SP	1.6	0.0	2.0
LICK CREEK	6860	6/01	2	.4	.0	1.3
LICK CREEK PILLOW	6860	6/01	SP	0.1	0.2	0.7
LOOKOUT (ID)	5250	6/01	34	18.2	.0	15.0
LOWER TWIN PILLOW	7900	6/01	SP	22.6	13.4	-
LUBRECHT FLUME PILLOW	4800	6/01	SP	.0	0.0	0.0
MADISON PLATEAU	7750	5/26	35	17.8	-	11.0
MADISON PLATEAU PILLOW	7750	5/26	SP	18.2	0.0	9.0
MANY GLACIER PILLOW	4960	6/01	SP	.1	.0	-
MAYNARD CREEK	6210	6/01	29	6.8	0.0	4.4
MAYNARD CREEK PILLOW	6210	6/01	SP	9.7	1.4	4.6
MONUMENT PEAK PILLOW	8800	6/01	SP	23.9	10.0	-
MOUNT LOCKHART	6400	5/28	55	20.2	.0	11.6
MOUNT LOCKHART PILLOW	6400	5/28	SP	22.6	0.0	13.0
MULE CREEK PILLOW	8350	6/01	SP	20.4	0.0	-
NEVADA CREEK PILLOW	6480	6/01	SP	13.3	0.0	-
NEWTON MOUNTAIN	5600	6/02	54	28.1	5.9	-
NEZ PERCE CAMP PILLOW	5650	6/01	SP	3.5	0.0	-
NOISY BASIN	6040	6/01	90	48.0	29.0	43.5
NOISY BASIN PILLOW	6040	6/01	SP	40.3	24.0	31.3
NORTH FK. ELK CREEK	6250	5/31	13	4.8	.0	2.0
NORTH FK. ELK CREEK PILLOW	6250	5/31	SP	0.6	.0	1.6
NORTH FORK JOCKO	6330	6/01	70	39.6	20.4	29.5
NORTHEAST ENTRANCE PILLOW	7400	6/01	SP	.0	0.0	0.0
OPHIR PARK	7150	5/30	42	14.5	.0	12.2
PICKFOOT CREEK PILLOW	6650	6/01	SP	.0	0.0	-
PIKE CREEK PILLOW	5930	6/01	SP	27.5	0.0	-
PLACER BASIN PILLOW	8830	6/01	SP	21.4	12.0	-
POORMAN CREEK	5100	6/01	47	25.7	.0	11.9
POORMAN CREEK PILLOW	5100	6/01	SP	25.8	0.1	10.3
PORCUPINE PILLOW	6500	6/01	SP	.5	0.1	-
RED MOUNTAIN	6000	6/01	14	6.6	.0	5.4
RED TOP	5260	6/02	34	18.4	.0	-
ROCKER PEAK	8000	5/27	34	14.2	8.8	10.5
ROCKER PEAK PILLOW	8000	5/27	SP	19.7	16.1	15.4
ROCKY BOY	4700	6/01	22	4.8	.0	0.0
ROCKY BOY PILLOW	4700	6/01	SP	5.0	0.0	0.0
SADDLE MOUNTAIN PILLOW	7940	6/01	SP	31.0	11.6	22.5
SHOWER FALLS PILLOW	8100	6/01	SP	28.2	16.1	26.2

SNOW JUNE 1, 1982

DRAINAGE BASIN and/or SNOW COURSE NAME	Elevation	THIS YEAR Date of Survey	THIS YEAR Snow Depth (Inches)	THIS YEAR Water Content (Inches)	PAST RECORD Water Content (Inches) Last Year	PAST RECORD Water Content (Inches) Average
SILVER RUN PILLOW	6630	6/01	SP	.0	0.0	-
SKALKAHO SUMMIT	7260	5/27	51	29.8	8.0	16.6
SKALKAHO SUMMIT PILLOW	7260	6/01	SP	30.0	9.9	-
SKYLARK TRAIL PILLOW	6200	6/01	SP	32.1	.0	-
SPOTTED BEAR MOUNTAIN	7000	6/01	1	.3	.0	1.2
SPUR PARK	8100	6/01	63	26.7	12.6	18.8
SPUR PARK PILLOW	8100	6/01	SP	27.2	14.1	18.2
STAHL PEAK	6050	6/01	64	35.8	25.0	35.8
STAHL PEAK PILLOW	6050	6/01	SP	31.3	19.3	30.2
STRYKER BASIN	6180	5/25	63	32.5	17.6	-
STUART MOUNTAIN	7400	6/01	49	26.5	13.7	20.2
SUCKER CREEK	3960	6/01	13	3.0	.0	-
TAYLOR ROAD	4080	6/01	23	5.8	.0	-
TEPEE CREEK PILLOW	8000	6/01	SP	12.2	0.7	5.3
TRINKUS LAKE	6100	6/01	67	34.9	23.2	27.0
TV MOUNTAIN	6800	6/01	31	13.1	2.4	11.3
TWELVEMILE CREEK PILLOW	5600	6/01	SP	.0	0.0	0.9
TWIN CREEKS	3580	6/01	0	.0	.0	0.0
TWIN LAKES PILLOW	6510	6/01	SP	48.0	7.2	30.7
UPPER HOLLAND LAKE	6200	6/01	53	25.9	10.7	24.8
WALDRON PILLOW	5600	6/01	SP	6.1	0.0	0.2
WARM SPRINGS PILLOW	7800	6/01	SP	27.7	16.4	-
WEASEL DIVIDE	5450	6/01	49	26.1	10.0	20.6
WEST YELLOWSTONE	6700	5/28	0	.0	.0	-
WEST YELLOWSTONE PILLOW	6700	5/28	SP	.1	0.0	0.0
WHISKEY CREEK PILLOW	6800	6/01	SP	5.8	0.0	1.7
WHITE MILL PILLOW	8700	6/01	SP	30.5	14.0	21.0
WOOD CREEK PILLOW	5960	6/01	SP	.0	0.0	-

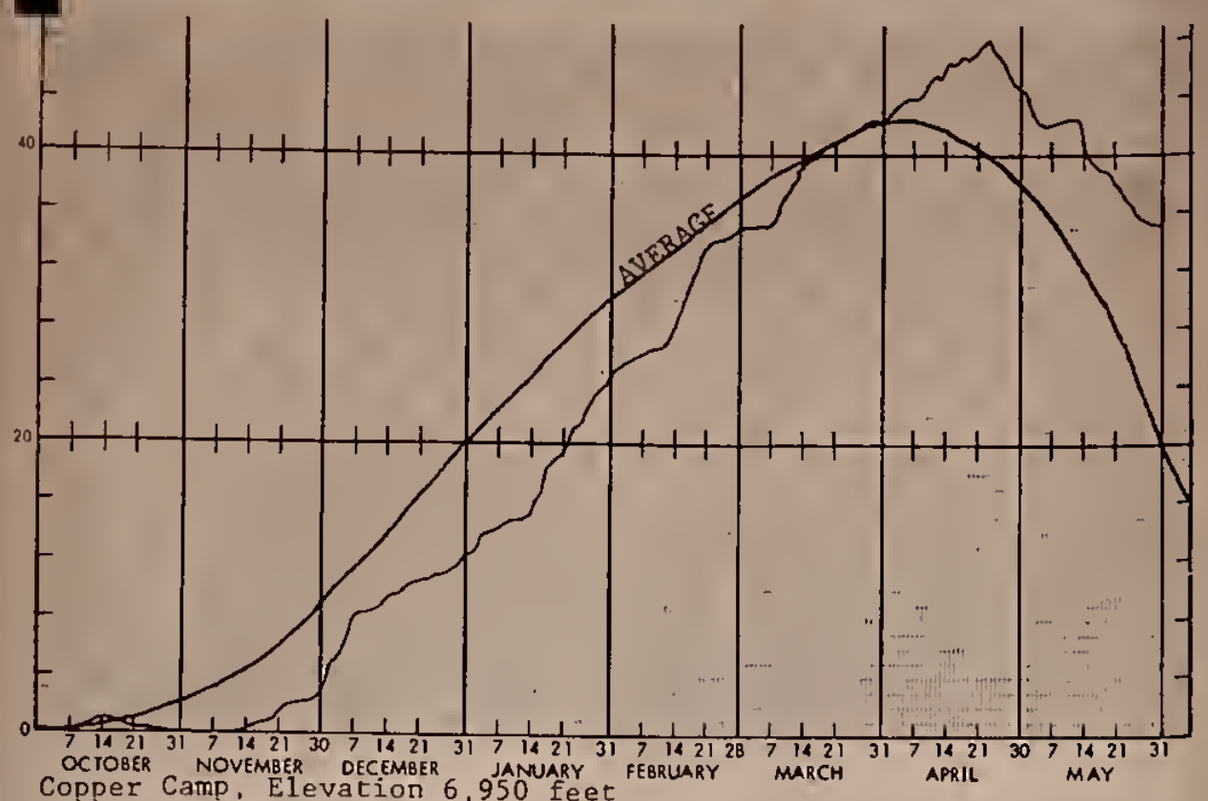
Unpublished data and corrections to previously published data

SNOW

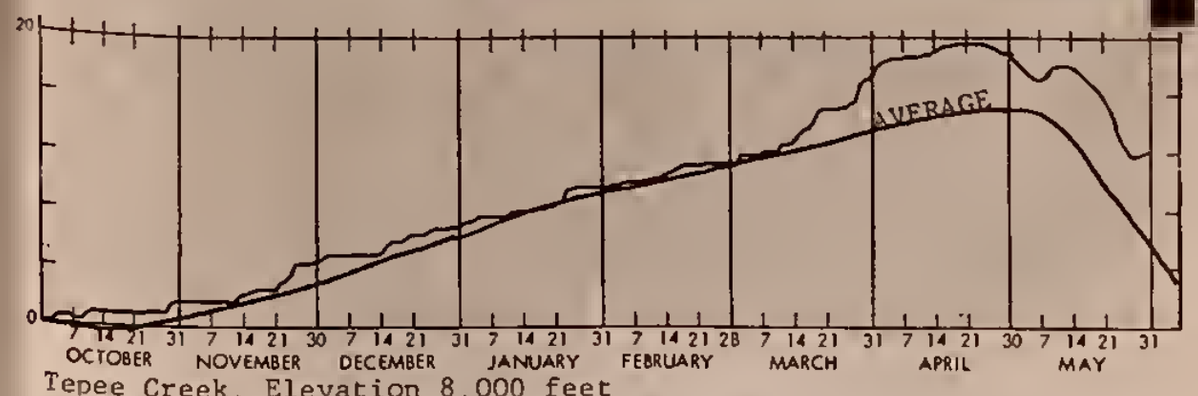
DRAINAGE BASIN and/or SNOW COURSE NAME	Elevation	THIS YEAR Date of Survey	THIS YEAR Snow Depth (Inches)	THIS YEAR Water Content (Inches)	PAST RECORD Water Content (Inches) Last Year	PAST RECORD Water Content (Inches) Average
JANUARY						
Big Sky	7700	1/05	38	8.5	3.5	7.0
Desert Mountain	5600	1/09	31	6.2	6.2	7.0
Dix Hill	6400	1/01	18	3.5	1.6	5.1
Emery Creek	4350	1/09	40	7.7	7.4	7.2
Heart Lake Trail	4800	1/08	45	10.7	3.1	6.6
Highwood Station	4600	12/28	0	0	0	2.3
Hoodoo Basin	6000	1/08	88	24.6	16.0	22.3
Hoodoo Creek	5900	1/08	74	20.8	15.2	18.8
Lone Mountain	8880	1/05	57	15.8	6.1	10.5
Lost Horse	5940	1/08	66	18.2	9.7	13.8
Lubrecht Hydroplot	4200	12/29	17	2.6	.4	2.8
Noisy Basin	6040	1/09	71	17.2	15.8	18.6
North Fork Jocko	6330	1/06	67	17.4	13.8	--
Poorman Creek	5100	1/06	45	12.5	8.4	15.9
Sand Basin Lower	6485	1/07	32	7.6	--	--
Twin Lakes	6510	1/08	77	22.0	12.9	18.2
Weasel Divide	5450	1/06	50	12.9	16.1	--
MID-JANUARY						
Hoodoo Basin	6000	1/19	100	31.0	18.0	--
Hoodoo Creek	5900	1/19	97	27.9	15.6	--
FEBRUARY						
Copper Bottom	5200	2/05	43	11.6	2.4	--
Copper Camp	6950	2/05	79	25.1	14.0	--
Elk Peak	8000	2/01	--	--	--	--
Kraft Creek	4750	2/06	49	13.1	--	--
Northeast Entrance	7400	2/01	31	7.5	2.2	7.4
MID-FEBRUARY						
Heart Lake Trail	4800	2/10	62	19.6	6.0	--
Hoodoo Basin	6000	2/10	110	40.5	28.8	--
Hoodoo Creek	5900	2/10	104	36.6	24.7	--
Mule Creek	8300	2/11	50	15.0	--	--
MARCH						
Kishenehn	3890	2/27	33	9.6	5.8	8.6
Lubrecht Forest #6	4040	2/28	20	6.2	.6	4.0
Marias Pass	5250	2/27	54	20.0	9.6	16.3
Mineral Creek	4000	2/25	53	18.4	12.4	17.2
Sand Basin Lower	6485	3/05	48	15.7	6.0	--
MID-MARCH						
Hoodoo Basin	6000	3/16	153	60.6	30.1	--
Hoodoo Creek	5900	3/16	144	56.7	26.2	--
APRIL						
Badger Pass	6900	4/2	113	46.4	26.1	41.7
Baree Creek	5500	3/31	130	54.5	28.0	50.3
Chessman Reservoir	6200	3/31	20	4.8	4.2	4.2
Copper Camp	6950	4/06	100	40.8	19.6	34.2
East Boulder S	9250	4/05	141	36.5A	--	33.6
Five-Bull	5700	4/02	31	9.7	.6	7.6
Picket Pin D	9450	4/05	123	30.0A	--	28.5
Placer Basin F	8830	4/05	111	26.5A	--	23.4
Sentinel Creek	8300	4/01	Est	31.0	16.7	25.6
Spotted Bear Mountain	7000	4/02	54	18.9	6.8	16.3
Star Lake E	9650	4/08	129	48.0A	--	46.8
Stryker Basin	6180	3/30	97	42.5	27.2	--
MID-APRIL						
Hoodoo Basin	6000	4/15	170	70.2	46.3	--
Hoodoo Creek	5900	4/15	160	63.0	39.6	--
Kraft Creek	4750	4/14	43	18.0	--	--
Skylark Trail	6200	4/14	117	46.6	--	--
MAY						
Baree Creek	5500	4/28	123	55.7	27.0	49.5
Calvert Creek	6430	4/28	40	14.2	0	11.3
Mineral Creek	4000	5/04	43	21.2	5.2	14.2

Average based on 1963-77 period. A - Aerial observation; water content estimated.
SP - Snow Pillow observations; water content only.

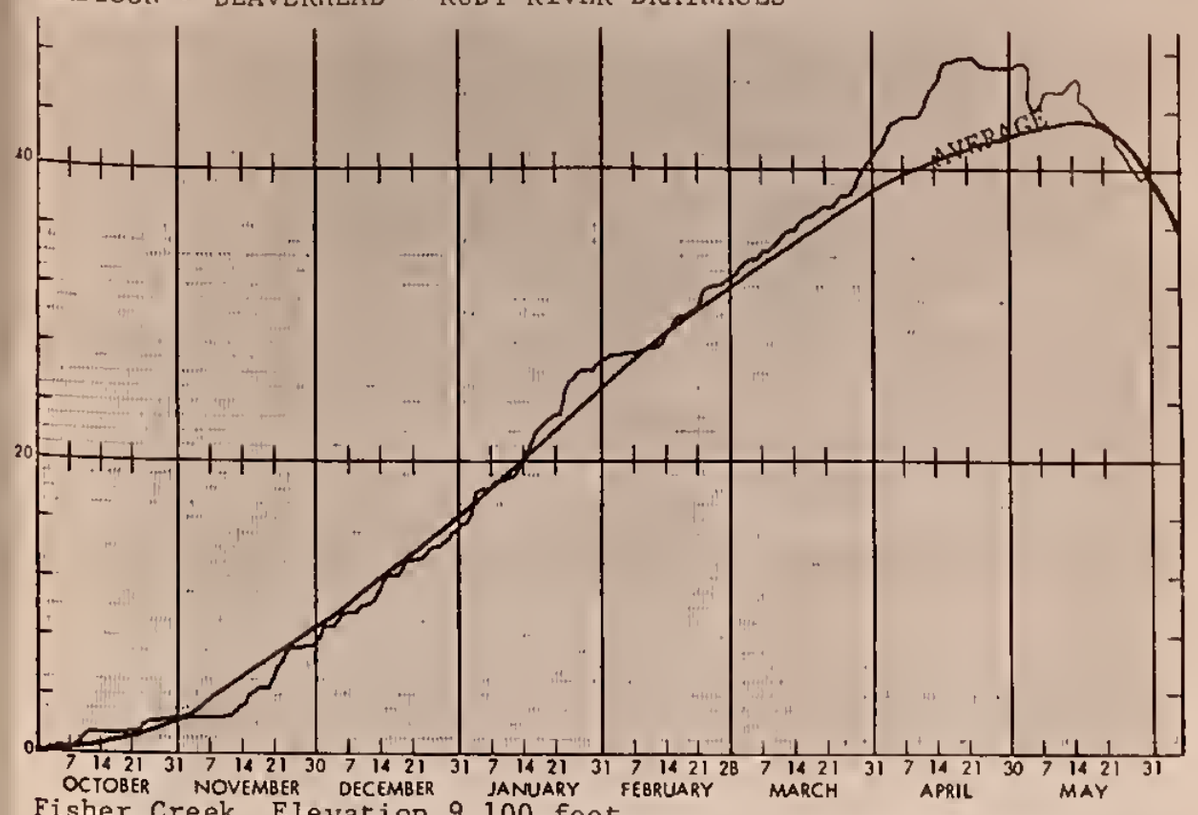
SNOW PILLOW DATA



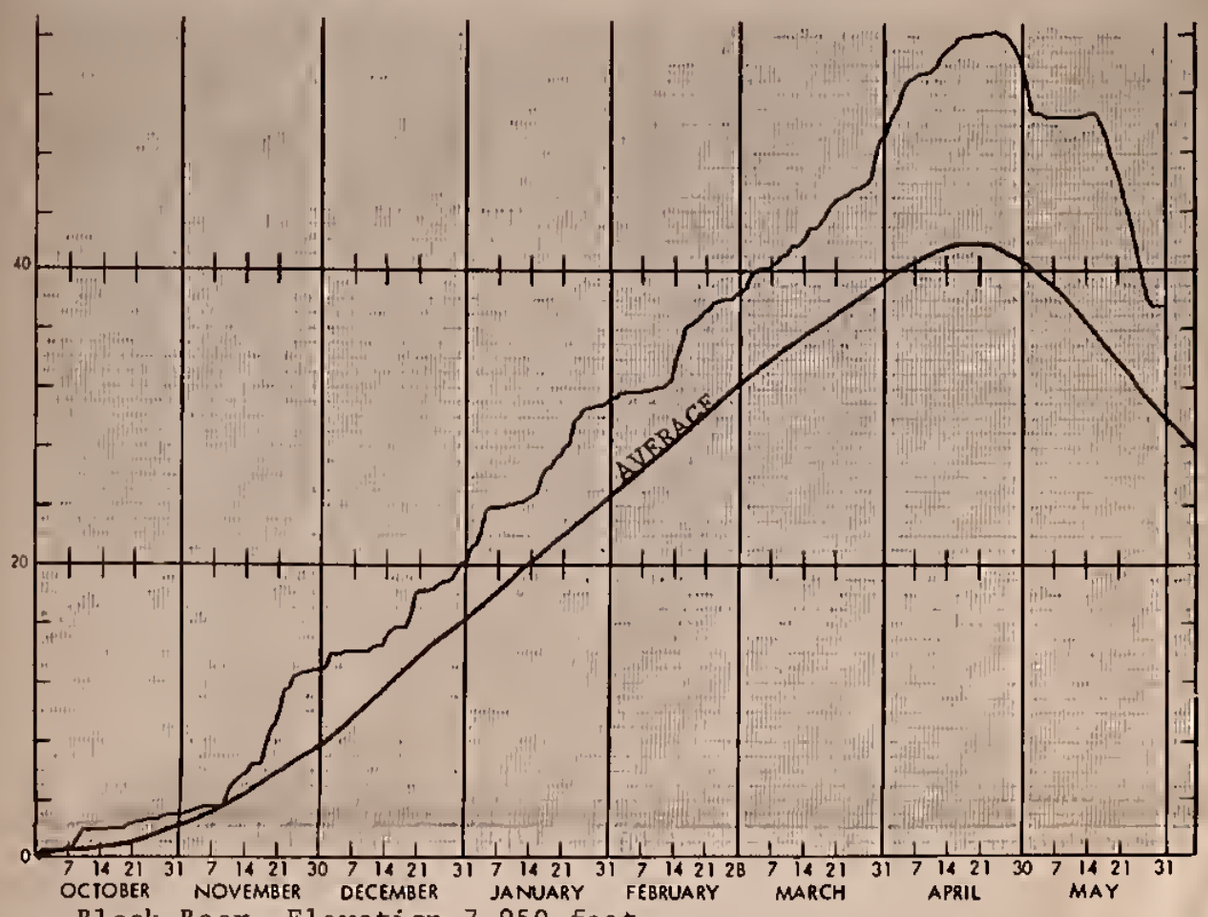
Copper Camp, Elevation 6,950 feet
BLACKFOOT RIVER DRAINAGE



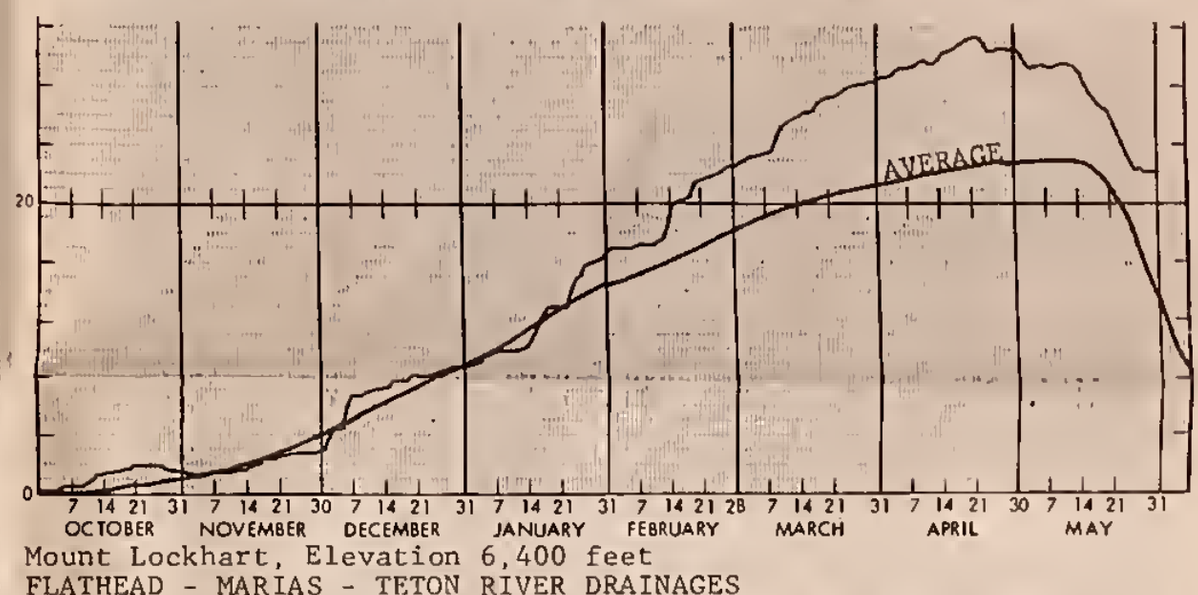
Tepee Creek, Elevation 8,000 feet
MADISON - BEAVERHEAD - RUBY RIVER DRAINAGES



Fisher Creek, Elevation 9,100 feet
YELLOWSTONE - BOULDER - STILLWATER - CLARK'S FORK RIVER DRAINAGES



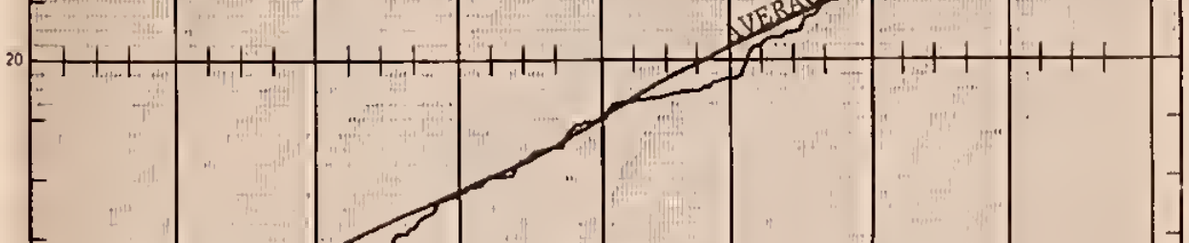
Black Bear, Elevation 7,950 feet
MADISON RIVER DRAINAGE



Mount Lockhart, Elevation 6,400 feet
FLATHEAD - MARIAS - TETON RIVER DRAINAGES

Twin Lakes, Elevation 6,510 feet
BITTERROOT RIVER DRAINAGE

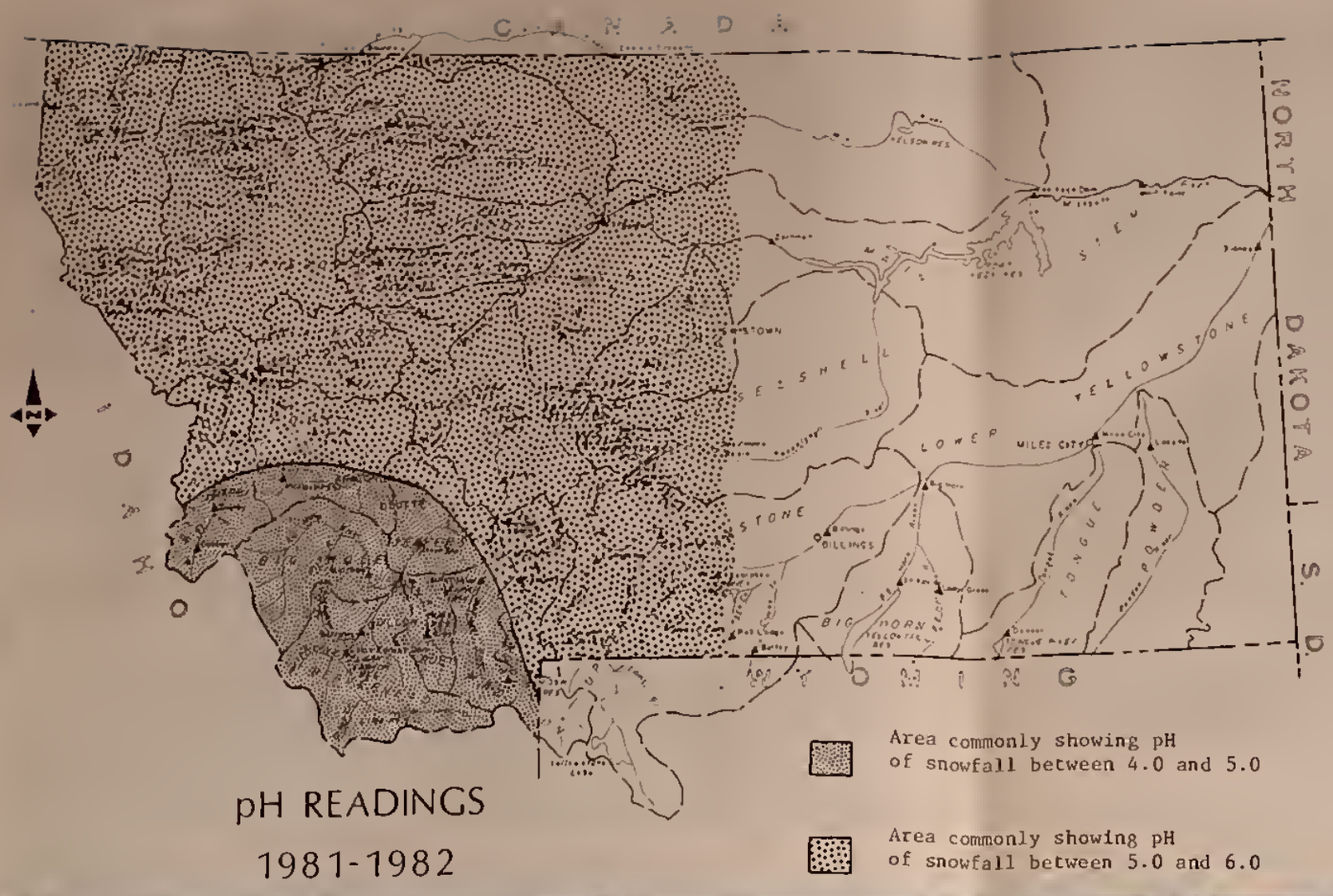
Shower Falls, Elevation 8,100 feet
GALLATIN - YELLOWSTONE RIVER DRAINAGE



Black Pine, Elevation 7,100 feet
UPPER CLARK FORK RIVER DRAINAGE

Stahl Peak, Elevation 6,050 feet
KOOTENAI - FLATHEAD RIVER DRAINAGES

Spur Park, Elevation 8,100 feet
JUDITH RIVER DRAINAGE



Area commonly showing pH of snowfall between 4.0 and 5.0

Area commonly showing pH of snowfall between 5.0 and 6.0

pH READINGS 1981-1982

ACID PRECIPITATION MEASUREMENTS

For the second season, snow surveyors have been measuring the pH of snow at snow courses. The pattern this past winter was similar to last season. Snowfall across the southwestern corner of the state consistently has pH ranging from 4.0 to 5.0. Other areas are usually in the 5.0 to 6.0 pH range with only an occasional low reading.

These data are being tabulated and analyzed and will be released in a written report similar to the one issued last year.

Analysis of snow cores from low pH snowfall areas is being done by Dr. Gordon Pagenkopf, Department of Chemistry, Montana State University. Preliminary laboratory results confirm low pH values of the snowpack. The chemical composition of the snow will be determined to see if source areas can be identified.

Future monitoring of snow pH by the SCS will depend on budget and staff constraints and priorities established for these activities.

RESERVOIR STORAGE (Thousand Acre Feet) END OF MONTH May 31, 1982

Average based on 1963-77 period.

Basin or Stream	RESERVOIR	Usable Capacity	Usable Storage: This Year	Usable Storage: Last Year	Usable Storage: Average
	COLUMBIA				
Kootenai	Koocanusa	5,748.2	2,659.0	4,233.0	---
Flathead	Hungry Horse	3,451.0	2,476.0	3,317.0	2,523.0
	Flathead Lake	1,791.0	1,321.0	1,605.0	1,440.0
	Camas (4)	45.2	38.1	33.6	30.8
	Mission Valley (8)	100.3	53.5	97.2	59.4
Clark Fork	Georgetown Lake	31.0	26.4	31.0	25.8
	Lower Willow Creek	4.9	5.1	5.0	4.1
	Nevada Creek	12.6	12.8	---	11.1
	Noxon Rapids	334.6	323.9	323.0	257.0
Bitterroot	Painted Rocks	31.7	---	---	29.4
	Como	34.9	---	---	26.3
	MISSOURI				
Beaverhead	Lima	84.0	78.5	80.0	68.1
	Clark Canyon	257.2	189.6	194.6	159.6
Ruby	Ruby	38.8	---	---	38.2
Madison	Hebgen Lake	377.5	294.3	371.6	300.3
	Ennis Lake	41.0	33.8	33.4	35.3
Gallatin	Middle Creek	8.0	6.5	7.6	6.5
Missouri	Canyon Ferry	2,043.0	1,629.0	2,010.0	1,625.0
	Hauser & Helena	61.9	63.0	60.1	60.0
	Lake Helena	10.4	10.9	9.8	9.8
	Holter Lake	81.9	71.2	79.1	77.0
	Fort Peck Lake	18,910.0	14,610.0	15,740.0	16,240.0
Smith	Smith River	10.6	11.6	11.4	10.9
	Newlan Creek	12.4	11.7	11.8	---
Musselshell	Bair	7.0	7.1	6.8	6.7
	Martinsdale	23.1	16.6	23.3	18.1
	Deadman's Basin	72.2	69.2	---	59.1
Sun	Gibson	99.1	81.6	97.5	90.4
	Willow Creek	32.2	28.2	30.2	28.3
	Pishkun	32.0	30.6	30.9	30.3
Marias	Lower Two Medicine	11.9	---	---	12.9
	Four Horns	19.2	---	---	12.9
	Swift	30.0	15.9	29.8	25.0
	Lake Frances	111.9	100.5	104.5	87.0
Milk	Elwell (Tiber)	1,347.0	683.2	652.9	642.7
	Beaver Creek	3.5	3.2	1.9	3.1
	Fresno	127.2	127.5	81.1	100.6
	Nelson	66.8	58.0	56.6	46.6
	HUDSON BAY				
St. Mary's	Lake Sherburne	64.3	8.7	42.2	31.2
	YELLOWSTONE				
Stillwater	Mystic Lake	21.0	2.1	7.9	5.4
Clark's Fork	Cooney	27.4	16.5	---	19.4
Tongue	Tongue River	68.0	27.4	---	47.8
Bighorn	Bighorn Lake	1,356.0	775.3	985.6	635.7

SATELLITE SNOW COVER

MISSOURI RIVER BASIN
Above Canyon Ferry Dam

DATA PROVIDED BY NOAA/NESS

DATE	PERCENT SNOW COVER	AVERAGE SNOWLINE ELEVATION IN FEET
November 8, 1981	9.5	8535
November 19, 1981	53	6530
November 26, 1981	100	3800
November 29, 1981	100	3800
December 7, 1981	71	5770
December 17, 1981	100	3800
December 20, 1981	91	4680
December 29, 1981	95	4380
January 6, 1982	96	4300
January 10, 1982	91	4680
January 17, 1982	100	3800
February 3, 1982	100	3800
February 18, 1982	76	5540
February 24, 1982	88	4890
February 28, 1982	76	5540
March 5, 1982	95	4380
March 13, 1982	59	6290
March 21, 1982	100	3800
March 25, 1982	91	4680
April 8, 1982	95	4380
April 10, 1982	85	5070
April 16, 1982	75	5590
April 20, 1982	68	5900
April 21, 1982	63	6160
April 22, 1982	61	6200
April 23, 1982	61	6200
April 29, 1982	65	6040
May 15, 1982	32	7330
May 21, 1982	25	7640
May 24, 1982	19.5	7925
May 25, 1982	12.1	8356

AGENCIES AND ORGANIZATIONS COOPERATING IN MONTANA SNOW SURVEYS

GOVERNMENT AGENCIES

Canada
- Department of the Environment
  - Atmospheric Environment Service
  - Water Management Service
- British Columbia Ministry of Environment
  - Inventory and Engineering Branch, Hydrology Section
- Alberta Environment
  - Technical Services Division

Federal
- Department of the Army - Corps of Engineers
- Department of Agriculture - Forest Service
- Soil Conservation Service
- Department of Commerce - National Environmental Satellite Service
- National Weather Service
- Department of Interior - Bureau of Indian Affairs
- Fish and Wildlife Service
- Geological Survey
- National Park Service
- Bureau of Reclamation
- Department of Energy - Bonneville Power Administration

STATE AGENCIES
- Montana Conservation Districts
- Montana Department of Fish, Wildlife and Parks
- Montana Department of Natural Resources and Conservation
- Montana State University - Agricultural Experiment Station
- University of Montana - School of Forestry

PRIVATE ORGANIZATIONS
- The Anaconda Company
- Big Sky of Montana
- Butte Water Company
- Flathead Valley Community College
- Montana Power Company

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

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